جمهورية مصر العربية

وزارة التربية والتعليم
والتعليم الفني

نموذج إجابة

امتحان شهادة إتمام الدراسة الثانوية العامة

للعام الدراسى ٢٠١٧/٢٠١٦ - الدور الأول

المـادة : الاحيــــاء (باللغة الانجليزية)

نموذج

د

(1) **(one mark)** page 88

T - helper cell (TH)

(2) **(one mark)** page 99

ⓒ cytotoxic T cell (TC)

(3) **(one mark)**

A) Because of two reasons: page 20

1- Huxely depends on microscopic structure of muscle fiber and he concluded that each muscle fiber consists of myofiberils and each of them is made of two types of protien filaments, thin action and thick myosin.

2- He compared a muscle fiber in state of contraction with another one in state of relaxation.

B)

1- In the presence of ATP molecules, the transverse links act as hooks to pull actin toward each other.

2- The muscle Consume part of energy stored in ATP in separtion of transvere links from actin filaments.

(4) **(one mark)** page 68

- Due to the presence of progestrone hormone which secreted from corpus luteum in the first three monthes of pregnancy, and secreted from placenta during the periods of pregnancy.

(5) **(one mark)** page 118

-Spatial organization of DNA molecules inside the nucleus will not occur.

(6) **(one mark)**

a - Drons of honey bee. (page 47)

b - Cells of spirogyira algae. (page 51)

c - Gametophytes in fern plants. (page 53)

(two examples are enough)

(7) **(two marks)**

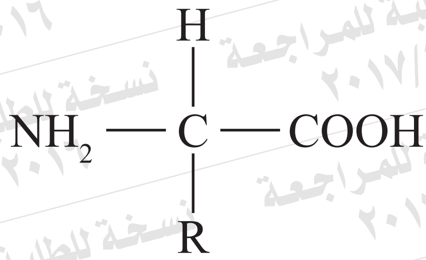
A) page 83

Tylosis	Gum precipitation
It is over growth of the protoplast of parenchyma cells close to xylem vessels and trachides and pass through pits to close the vosculer system	The infected plants secret gums around the site of infection to prevent the enterance of pathogens to the plant.

B)

Detoxifying enzymes	Hypersensitivity
They react with the toxic substances secreted from pathogens and changed it into non-toxic substances.	The plants get rid of infected parts to prevent the distribution of pathogens to the rest parts of the plant.

(8) **(two marks)** page 125



It consists of α - carbon atom attached to two groups (amino group and carboxylic group) in addtion to alkyle group and hydrogen atom except glycine that has two hydrogen atoms.

(9) (ACTH) hormone **(two marks)** page 31

site of secretion	Function
Adenohypophysis of pitutary gland	It stimulates the cortex of adrenal gland to produce its hormones.

(10) **(one mark)**

A) Inflorescence. page 54

B) Chorion page 67

(11) **(one mark)**

1- Through treating the entire genome with restriction endonuclase enzyme.

2- By using mRNA as template from active cells as cells of pancrease which produces insulin or precursors of haemoglobin of red blood cells and using reverse transcriptase enzyme.

(12) **(one mark)** page 58

Cross pollination will occur.

(13) **(one mark)** page 52

ⓑ Gametocytes.

(14) **(one mark)** page 116

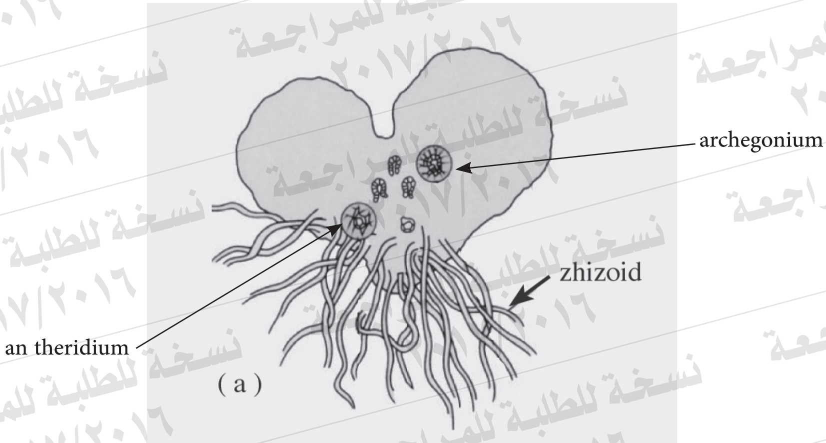
It leads to gene nutation and these changes will not be repaired

(15) **(one mark)** page 72

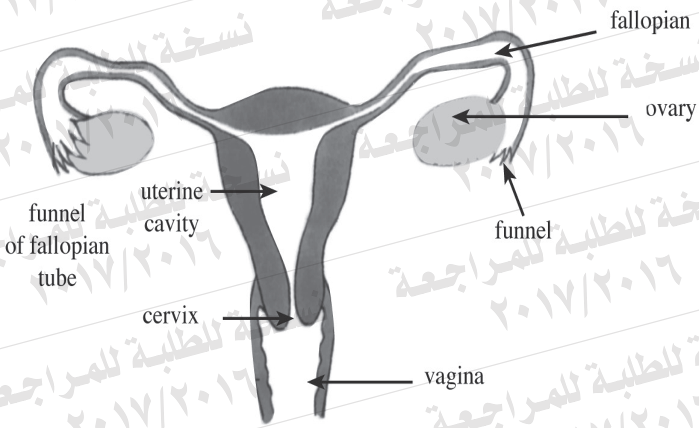
Condum	Surgical sterlization
It prevents the enterance of sperms into the vagina	Cutting or legation of vas differenes in males, or fallopian tubes in females

(16) **(two marks)**

A)



B)



(17) **(two marks)** page 15

- **First:** (2) is achilles tendon. **(½)**
- Its importance: connects gastrocnemius muscle with heel bone. **(½)**
- **Second:** it leads to loss of elasticity in the muscle, inability of walking, heavy movement of foot and acute pain. **(one mark)**

(18) **(two marks)**

First: Sticky ends are formed (stuggard cut)

↓
5´ .. G AATTC ..3´
3´ .. CTTAA G .. 5´
↑

Second: there are more than 250 restriction engymes.

(19) **(one mark)**

A) page 56

To produce four haploid cells called microspores (N) each of them develops into a pollen grain.

B) page 60

Since they are produced as a result of natural parthenocorpy.

(20) **(one mark)** page 94

ⓓ Histamine.

(21) **(one mark)** page 20

It causes the enterance of (ca^{++}) to the button and causes rupure of synaptic vesicles and releases acetyle cholene and at the end it causes muscle contraction.

(22) **(one mark)** page 59

The produced seed will be single seed Fruit called grain or endospermic seed as maize and wheat.

(23) **(one mark)** page 98

Interleukins

(24) **(one mark)** page 35

The cortex of adrenal gland increases its secretion of aldosterone hormone which keeps the balance of minerals inside the body.

(25) **(two marks)**

A) page 85

Bone marrow	Thymus gland
It is responsible for the formation of white blood cells and blood platelets Also maturation of natural killer cells (NK) and B-cells occurs inside it.	It secretes thymosin hormone which responsible for maturation and differentiation of lymphoid stem cells to T-cells.

B) page 102-103

Antigens	Immune receptors
Found on the surface of pathogens as viruses and bacteria.	Found on the surface of lymphocytes and macrophages to recognize the antigens.

(26) **(two marks)** page 128

First:

(1) site of attachment with amino acids **(½)**

(2) Anti - codon **(½)**

Second:

Transfere amino acids from the cytoplasm to ribosome during protien synthesis. **(one mark)**

(27) **(two marks)** page 34

Through separation of sperms which have (x) chromosome from the sperms which have (y) chromosome by centrifugation or exposure to limited electric field to produce males or females.

(28) **(one mark)**

A) Pectoral (sohoulder) girdle. page 12

B) (H) zone page 19

(29) **(one mark)** page 87

A) chemokines:

They recruit (guide migration) of large circulating phagocyte cells which are found in blood with large numbers to sites of existence of microbes or foriegn particles to prevent their reproduction.

B) Precipitation: page 90

This happens in case of soluble antigens, in which the binding between antibodies and thes antigens leads to formation of insoluble antigens - antibodies complexes which form a precipitate, to facilitate its engulfing by phagocytes.

(30) **(one mark)**

A) Funicle in plants page (55)

position	function
between the ovule and the ovary wall of the plant flower	Through which food substances pass from the ovary to the ovule

B) Archigonium:

position	function
In the lower anterior part of gametophyte of fern plants	It is female oragan which produces eggs

(31) **(one mark)**

ⓒ duplication and growth page 64

(32) **(one mark)** page 95

Because it response to a specific antigen and each group of B - cells produces a specific type of antibody to a specific type of antigen.

(33) **(one mark)**

Replication of DNA will not occur correctly and repairing of damaged parts of DNA will not occur. page 121

(34) **(two marks)**

A) **(one mark)** page 62

Nutrition and immunity of sperms will not occur.

B) **(one mark)** page 62

Production of male sex harmones as testosterone which responsible for the appearance of secondary sexual characters on males bodies.

(35) **(two marks)** page 36 - 37

Insulin Hormone	Glucagon Hormone
It decreases the level of glucose in the blood through oxidation of glucose in the body tissues and cells, and regulates the relation between the stored glycogen and free glucose	It acts against insulin. It stimulates the liver to convert the stored glycogen into glucose.

(36) **(two marks)**

- E_1: Deoxyribonuclase enzyme. **(½)**

Because it causes complete analysis of DNA. **(½)**

- E_2: restriction endonuclase enzyme. **(½)**

Because it recognizes a sequence of nucliotides from 4 - 7 and cut at or near it. **(½)**

(37) **(one mark)**

A) Reverse transcriptase enzyme page 137

B) PCR machine. page 137

(38) **(one mark)**

A) It keeps subterrainean soring stems at suitable level in the soil which support the aerial parts against wind effects. page 17

B) It causes attraction of the stems of climbing plants toward the support to grow erict and stronger. page 16

(39) **(one mark)**

A) If the ovum formed by mitosis (as in case of aphid insect), so it will grow to a diploid insect.(2N)

If duplication of chromosomal number occur due to activation of the ovum artificially. (2N) page 47

B) If the cut arm has no part of the central disc.

(40) **(one mark)** page 60

This occurs through artificial parthenocarpy by spraying the stigmata by indol or naphthole acetic acid or extraction of pollen grains in water or ether.

(41) **(one mark)** page 94

ⓑ cerumen (Ear wax)

(42) **(one mark)** page 133

- On mixing DNA double helices and heating them to 100 °c, the hydrogen bonds between nitrogenous bases will be broken and single unstable strands will be formed.

- On lefting the mixture to cool down, the single strands tend to reach to stable state.

- Any single strands of DNA or RNA can form double helices if there is a complementary sequences of nucleotides.

(43) **(two marks)** page 127

First:

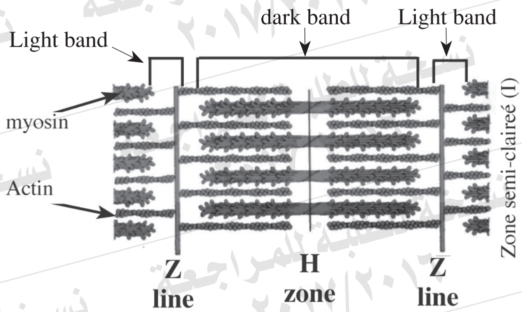
- mRNA

$\overline{5}$. AUG CGG UUG GGG UAU UGA. $\overline{3}$

- Second:

The number of amino acids is (5)

(44) **(two marks)** page 18



(45) **(two marks)** page 100

First: 1st infection takes longer time.

Because the B and T cells will respond to the antigens of this pathogens and attach to it until it is destroyed, this takes a longer time since this cells need time to multiply, this time between 5 and 10 days.